

**THE EFFECTS OF PRIOR EXPOSURE TO BRAND NAME PRODUCTS ON
IMPLICIT AND EXPLICIT MEMORY TESTS**

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ABSTRACT

The Effects of Prior Exposure to Brand Name Products on Implicit and Explicit Memory Tests

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This study was designed to explore the effects of different kinds of exposure to brand name products on explicit and implicit memory tests. At the time of exposure, participants were given brand name products exposed in a conceptual manner and data driven manner, and this was accomplished by the levels of processing (LOP) manipulation effect. Then at test, participants received a recognition memory test (conceptually driven) and a forced choice purchasing task (data driven). Following each memory test, participants were given a test awareness questionnaire that consisted of a series of questions in order to find out the level of participant's knowledge on the purpose of the experiment (whether or not they were aware of the fact that items were presented before and repeated through a second task, when they became aware, and how often they were aware). Results showed that LOP manipulation effects were significant in the recognition test, but not significant in the forced choice purchasing task. In addition to LOP manipulation effects, correlations between recognition test awareness and memory performance were positive, while correlations between forced choice purchasing task awareness and priming performance were negative. Even with subtle exposure to brand name products, participants selected products more often when it was studied than when it was not studied. It can be concluded that the manner in which products are exposed has an effect on consumers'

purchasing behavior and, more importantly, so too does the manner in which consumers are tested for their purchasing behavior. Specifically, advertisers should not always be reliant on recognition memory tests in order to test the effectiveness of advertisement techniques on purchasing behavior.

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CHAPTER I

INTRODUCTION

The manner in which consumers are exposed to brand name products is a focus of the marketing industry. One of the most fundamental questions in advertising research is to determine the effectiveness of varying approaches to exposing brand name products to consumers. Advertising research measures the effectiveness of a message in an advertisement in a variety of ways, testing memory for the products and determining purchasing behavior (whether or not the individuals would purchase products to which they had been previously exposed).

Of course it is assumed that the manner in which consumers are asked to process the brand name products will make a difference as to whether or not they remember and/or purchase those products later on. Psychologists have developed various types of methods to promote different types of information processing in participants when they are exposed to that information, some of which may be applicable to the everyday consumer literature.

One such distinction between different forms of information exposure has been described in level of processing (LOP) theory which was first explored and formed by psychologists Fergus Craik & Robert Lockhart (1972). It is well established that a deep level of processing promotes better memory performance than a shallow level of processing. When participants are asked to process a word deeply, semantic processing occurs in which memory for the meaning of the word and its relationship to other words with similar meanings is formed. For example, researchers may ask participants to judge the pleasantness of the meaning of words, like “hyena” (unpleasant?) or “party” (pleasant?). In contrast, when participants are asked to process a word shallowly, structural processing occurs in which memory for the physical qualities or attributes

of the words is formed (Craik & Lockhart 1972). For example, researchers may ask participants to count the number of vowels in a word, like “assassin” (three vowels). Results have shown that memory performance in recall or recognition tests is substantially better for deeply processed information than shallowly processed information.

Not only will the manner in which consumers are asked to process the brand name products make a difference on consumer behavior, but the manner in which consumers are asked to remember, purchase, or judge a brand name product may also make a difference. In order to evaluate differences for the in exposure to brand name product, varying measuring tests such as forced choice purchasing task or recognition tasks are utilized.

The distinction between implicit and explicit memory tests has been one of the most important and influential areas of research in scientific psychology in the past forty years. The outcome of this particular area of study is that people retrieve memories in two different ways. In implicit tests, participants are not asked to retrieve information explicitly. Instead, they are given a task such as the stem completion task, where they are asked to complete three-letter stems (word beginnings) with the first word that comes to mind. Prior exposure to words that begin with those stems influences participants to use the words that have been previously presented rather than alternative word completions. Such retrieval has been referred to as automatic retrieval, unconscious retrieval, unintentional retrieval, or priming. In contrast, in explicit tests, participants are explicitly asked to retrieve information from a specific recently experienced episode. For example, participants might be given a task such as stem-cued recall in which they are once again presented with three-letter stems but, in this instance, they are asked to complete

the stems only with the words that had been previously presented. Retrieval in these types of tasks has been referred to as conscious or intentional retrieval (Graf & Schacter, 1985).

One of the most prominent pieces of evidence for the distinction between implicit and explicit memory tests is the difference between the performance of amnesics and normals on these different memory tests. Amnesics display equivalent performance on implicit memory tests, but poor memory performance on explicit memory tests when compared to normal. This dissociation of implicit and explicit memory as a function of participant population has been taken as evidence for different memory systems (i.e., an implicit system and an explicit system).

Another prominent piece of evidence for the distinction between implicit and explicit memory tests is the dissociation of implicit and explicit memory tests as a function of levels of processing manipulations. As noted above, levels of processing does have an influence on explicit memory tests. In contrast however, levels of processing has little or no influence on implicit memory tests. (e.g., Bowers & Schacter, 1990).

All the distinctions mentioned above (levels of processing manipulations, implicit/explicit differences, and dissociations) have been looked at in the cognitive literature, but they also have relevance to the consumer literature. Research has shown that levels of processing manipulations – where the way in which brand name products are exposed – have an influence on consumer behavior. Also, the dissociations between implicit and explicit memory tests have shown that the various ways in which consumers are asked to retrieve a memory of, purchase or judge a brand name product may not all provide the same picture of the influence of prior exposure consumer behavior.

Researchers have been developing several theories to predict and describe consumer behavior. Specifically, MacInnis & Jaworski (1989), looked at the effects of information processing and levels of processing of advertisements on such consumer behavior. They were particularly interested in investigating the depth of understanding about the brand that consumers attain through advertisements. They concluded that as attention becomes increasingly focused on the brand name instead of the secondary task, and as the cognitive capacity is allocated to brand analysis, the individual becomes capable of greater understanding of the brand, its benefits, and its implications for the self (MacInnis & Jaworski, 1989).

The application of implicit and explicit memory differences to marketing and consumer behavior has been further examined by Lee (2002). Her research showed that memory-based benefits from advertising enhances conceptually driven implicit memory whereas stimulus-based choice benefits from advertising enhances perceptually driven implicit memory. Such findings have further established the distinction between implicit and explicit memory and its application to the marketing area.

In order to further assess the effects of LOP manipulations and the distinction between implicit and explicit memory tests on consumer behavior, Krishnan and Shapiro (1996, Exp.1) manipulated both levels of processing and type of memory test. Their hypothesis was that dissociations of implicit and explicit memory tests as a function of levels of processing manipulations could also be observed with brand name products. At exposure, participants were exposed to advertisements that consisted of pictures of products, descriptions of the products, and a prominently placed “brand name,” which was actually a common word (i.e., service) acting as a proxy for a brand name. In the deep processing condition, participants were asked to

determine the brand names' appropriateness to the products. In the shallow processing condition, participants were asked to determine whether the brand names were well-lit and in focus. At test, participants were given four alternative brand names. In the implicit test, participants were given a preference judgement task where they were asked to indicate which of the four brand names (all common words) they most preferred. In the explicit test, participants were given a recognition task where they were asked to indicate which of the four brand names (all common words) they were exposed to previously. Results showed that the LOP manipulations did indeed dissociate the explicit and implicit memory tests. Deep processing for brand name products led to better explicit memory test performance than shallow processing, but deep processing for brand name products did not lead to better implicit memory test performance than shallow processing.

Since a majority of today's advertisements include a visual representation of brand name products, results from an experiment in which the brand name products are presented in a picture form will be most applicable to real-life situations. It is commonly known that the way in which consumers are exposed to products (i.e. audio, visual, pictorial), will have an impact on the pattern of results when it comes to the purchasing behavior after exposure to the brand names products.

In this experiment, participants processed brand name products in two different ways, roughly corresponding to the notion of different depths of processing introduced by Craik and Lockhart (1972). In the deep elaboration condition, participants thought about the brand name products (presented in a picture form) in some self-relevant fashion. In the shallow elaboration condition, participants processed visual features in the pictures of the brand name products. When brand

name products are exposed in different ways, they are processed in different ways, and may thus produce different levels of memory performance in tests such as recall or recognitions. Also, three brand name products were presented to the participants during the elaboration tasks. With three brand name products (instead of one or two) we were able to examine whether just considering other products against chosen products, sparks enough processing to produce a priming effect in a forced choice purchasing task, and a memory effect in a recognition task.

To evaluate the effect of these different types of exposure on consumers, two different kinds of memory tests were employed, corresponding to the notion of explicit and implicit memory tests introduced by Graf and Schacter (1985). In the explicit recognition test, participants were given two brand name products from the same product category and were instructed to choose the product that had been presented earlier. In the implicit forced choice purchasing task, participants were again given two brand name products from the same product category but were instructed to choose the brand name product that they would purchase.

Very often, different memory tests show different patterns of effects as a result of different types of exposures to brand name products (Balasubramanian, Karrh & Patwardhan, 2004). One way that these different patterns of effects across the different memory tests may be understood is within the context of the Transfer Appropriate Processing (TAP) framework (Roediger 1990). There are two basic principles in the TAP framework. First, information can be processed either in a conceptual manner or in a data driven manner. Second, memory performance is best when there is a processing overlap between study and test.

At study, when participants perform the deep elaboration task, brand name products will be processed in a data driven manner (otherwise, how could participants perceive the brand name

products?), and in a conceptual manner, which promotes the storage of some aspect of the meaning of the brand name product. When participants perform the shallow elaboration task, brand name products will be processed only in a data driven manner. At test, participants will engage in conceptually driven processing in the explicit recognition test and data driven processing in the implicit forced choice purchasing task.

Given that these types of processing are occurring at study and test, it becomes apparent that some types of study overlap better with some types of test than others. Specifically, given that the explicit recognition test is a conceptually driven test, deeply processed brand name products will be better remembered than shallowly processed brand name products. On the other hand, given that the implicit forced choice purchasing task is a data driven task, shallowly processed brand name products will be purchased about as often as deeply processed brand name products because both are processed in a data driven manner.

In summary, results from this experiment should conform to TAP theory (Roediger 1990). In addition, these results should contribute to our understanding of the manner in which brand name products may be effectively presented to consumers. Finally, a recognition memory test could alone be used to determine the effects of product presentation on consumers and such performance could be used to predict consumer purchasing behavior. However, if the predicted pattern of effects is obtained – an LOP effect in the recognition test but no LOP effect in the forced choice purchasing test – this would be evidence that it may be ill-advised to use consumers' recognition memory to predict their purchasing behavior. Rather, the dissociation of the two tests would imply that snap purchasing decisions rely on a memory/action system – an

implicit memory system – that is distinct from the explicit memory system underlying recognition performance.

CHAPTER II

METHODS

Participants

The sample will consist of 64 undergraduate students from Texas A&M University. The students will receive course credit in their introductory psychology class for participating in the study.

Participants signed up for the experiment using an online sign-up system (SONA).

Design

The purpose of this experiment was to examine the effects of prior exposure to brand name products on implicit and explicit memory tests. The experimental design was a 3x2 within-subjects design. The independent variables were Study (i.e., deep, shallow, and baseline) and Test (explicit vs. implicit). The primary dependent variables were accuracy and response time.

Materials

There were 96 unique critical product/store/business categories, henceforth referred to simply, for expediency purposes, as product categories. The critical product categories were relatively narrow and probably best characterized as subordinate categories (i.e., Lipstick) in a hierarchical category structure. The critical product categories were derived from basic level (i.e., Makeup) and superordinate level (i.e., Health/Beauty) categories in a hierarchical category structure. An attempt was made to choose critical product categories from a variety of superordinate and basic level product categories. The most common superordinate product categories were health/beauty, food, tools, clothing, drinks, entertainment, and home. Then, within each superordinate level category, several basic level categories were taken into consideration when deciding upon the

eventual subordinate-level critical product categories. For example, within the superordinate product category of “health/beauty” the critical product categories of Lipstick, Hair Gel, Sunscreen, Deodorant, etc. were spread across the basic level categories of Makeup, Hair Products, Hygiene Products, respectively. All of the critical product categories were of commonly known and commonly used products.

Two critical brand name products were chosen from each critical product category. An attempt was made to choose brand name products that were relatively well known and, when possible, were of a medium popularity level. For example, Steve Madden Heels and Callaway Golf Shoes, Ozarka Natural Spring Water and Dasani Bottled Water, Colgate Toothpaste and AquaFresh Toothpaste, etc. Some of the critical brand name pairs were chosen on the basis of a norming study conducted by Manzano (2010) for her dissertation. The others were chosen by consensus of the research team.

The pictures of the two critical brand name products in each critical product category were selected following set of criteria such that the two pictures were very similar to each other, other than the unique features of each brand’s product presentation. For example, if the color of lipstick in one brand was red, the color of lipstick in the other brand was also red; if a brand name logo was added to one picture, the logo of the other brand was added, in the same position, to the picture of the other brand name picture; if the orientation of the brand name product in one picture was horizontal, the orientation of the other brand name product from that same critical product category was also horizontal; etc.

The 96 critical product categories were divided up into two groups of 48. Which of the two groups of 48 was presented at study, and which of the two groups of 48 served as baseline, was

counterbalanced across participants. Of the two critical brand name products (e.g., Clinique, Mac) in each critical product category (e.g., Lipstick) being presented at study, the critical brand name product being presented was counterbalanced across participants. Of the 48 critical brand name products being presented at study, the 24 brand name products that were presented in the deep condition, and the 24 brand name products that were presented in the shallow condition, were counterbalanced across participants. Half of the items in each of the studied conditions (i.e., Deep, Shallow) were later presented in the forced choice test and the other half were presented in the recognition test, and this also was counterbalanced across participants. In addition, the side of the screen on which the critical brand name product was presented during the elaboration task was counterbalance across participants, as was the side of the screen on which the critical brand name product was presented during test. Finally, the match between the side on which the critical brand name product was presented during Each elaboration trial consisted of one critical brand name product and two other brand name products, each of which was from a unique product category. Thus, besides the 96 critical brand name product categories, there was an additional 192 product categories in order to have two alternative brand name products, along with the critical brand name product, in each elaboration trial. Like the critical product categories, the product categories of the alternative products were, for the most part, of common products from a range of basic level and superordinate level categories. The specific alternative product categories that were selected to be presented with each specific critical brand name product in the elaboration task were selected in order to fulfill criteria associated with a task (i.e., semantic comparison) used in other experiments in our lab. Nevertheless, there was no obvious association between the alternative product categories and the critical product category in each elaboration trial. As well, the particular brand names selected for the products in the alternative product

categories were selected in much the same manner as were the brand names of the critical products; that is, they were commonly known brands of medium popularity. All brand names, across all 384 brand name products, were unique.

As noted in the introduction, the purpose of the deep elaboration task was to encourage processing of the brand name products in some prescribed, self-relevant manner. Thus, many deep processing cues targeted frequency or recency of use, consumption, or perception (e.g., Most Frequently Used, Most Recently Seen), with many variants on these themes (e.g., Least Frequently Seen at Home, Most Likely to Bring on a Trip). The deep elaboration task was originally conceived as providing a study/processing task that could potentially influence memory for brand name products in a manner different than would a semantic comparison study/processing task. Thus, because the semantic comparison task emphasized product attributes (e.g., size, function, shape, state of matter, etc.), the cues in the deep elaboration task purposely avoided the referencing of product attributes.

The purpose of the shallow elaboration task was to encourage processing of the surface properties of the brand name products themselves or the specific pictures of the brand name products that were chosen for this experiment. Again, the cues in the shallow elaboration task avoided referencing all other product attributes. Most of the shallow cues targeted color, reflection, brightness, etc. Some examples of shallow processing cues were “Most Blue,” “Least Red”, “Most Colorful”, “Least Reflection”, etc. When presented with pictures of stores, the cues sometimes targeted how much sky was visible in the picture or the closeness of the store to the photographer taking the picture.

All picture files presented were exactly 400 pixels tall and/or wide, depending on the orientation of the brand name product in the picture. For the most part, the brand name products stretched nearly edge to edge in the picture, regardless of the actual, real-life, size of the product. That is, the sizes of the objects in the pictures were not always proportional to their relative sizes in real life. Every effort was made to find pictures of brand name products in which the brand name on the product was visible to the participant. However, this was not possible in some cases. Thus, if the brand name of the product was not readily visible, the brand name logo was copied and pasted into the 400 pixel x 400 pixel frame. As noted earlier, if this needed to be done with one of the brand name products in the critical brand name product pairs, it was also done to the other member of the pair. As noted earlier, during the forced choice purchasing task (see Appendix C), it was important that the two pictures of the brand name products were well matched not only in specific properties of the brand name products in that pair (i.e., flavor, quantity, special features [e.g., “no sugar added”], etc.), but also in terms of product orientation, size, and the location of the logo in the picture frame.

Procedures

The experiment had two phases: study, then test. In the study phase, participants deeply processed some brand names products and shallowly processed others. In the deep elaboration (see Appendix A) condition, participants processed three brand name products in some self-relevant fashion (e.g. “Least Frequently Used?”). In the shallow elaboration (see Appendix B) condition, participants processed visual features in the pictures of three brand name products (e.g. “Least Shiny?”). In the test phase, participants were first given the forced choice purchasing task on one half of the studied products. Then, participants were given the recognition test on the other half of the studied products.

In the elaboration task, deep elaboration trials and shallow trials were presented in a quasi-random order. Specifically, the 48 critical brand name products were divided up into 16 groups of three, where each group of three represented a unique combination of study (deep versus shallow), position on the screen during study (left versus right), test in which those items would be presented (forced choice versus recognition), and position on the screen during test (left versus right). One item was presented from each of these groups in a random order before a second item was picked from any of the 16 groups.

Each trial in the elaboration task, began with a blank screen lasting 150 milliseconds. Then the elaboration cue was presented near the top of the center of the screen for two seconds. The cue remained on the screen and the three pictures of brand name products were presented along the bottom of the screen for three seconds or until the subject made their response. If a subject decided to choose the picture on the left best fit the cue, they pressed the “D” key, if a subject decided to choose the picture in the center best fit the cue, they pressed the “K” key, and if a subject decided to choose the picture on the right best fit the cue, they pressed the “L” key. Each trial ended with a 250 millisecond blank screen, before the next trial began automatically.

Each trial for the forced choice purchasing task (see Appendix C) started with a blank screen for 150 milliseconds. Then the category cue was presented on the top of the screen for two seconds. The category cue stayed at the top of the screen and the following two other products were presented with one being on the left, and the other on the right. The pair of two brand name pictures stayed on the screen for three seconds, or until the participant responded and the task terminated afterwards. If a subject decided to choose the picture on the left best fit the cue, they pressed the “D” key and if a subject decided to choose the picture on the right best fit the cue,

they pressed the “L” key. Each trial ended with a blank screen appeared for 250 milliseconds.

There was a test questionnaire (see Appendix D) given at the end of the forced choice purchasing task as well. The questionnaire was a series of questions in order to find out the participant’s knowledge on the purpose of the experiment (whether or not they were aware of the fact that items were presented before and repeated through a second task, when they became aware, and how often they were aware), and awareness specifically.

Each trial for the recognition task (see Appendix C) also started with a blank screen for 150 milliseconds. Then the category cue was presented on the top of the screen for two seconds. The category cue stayed at the top of the screen and the following two other products were presented with one being on the left, and the other on the right. The pair of two brand name pictures stayed on the screen for three seconds, or until the participant responded and the task terminated afterwards. If a subject decided to choose the picture on the left best fit the cue, they pressed the “D” key, if a subject decided to choose the picture on the right best fit the cue, they pressed the “L” key, and if a subject decided that none of the choices best fit the cue, they pressed the “space” key. Each trial ended with a blank screen appeared for 250 milliseconds. There was also a second test questionnaire given at the end of the recognition task as well. The same questions of awareness for the forced choice purchasing task questionnaire was used after the recognition task.

In scoring the awareness questionnaire’s, unaware, aware, and intentionally retrieving were conceived as occurring on a continuum. As a result, questions 1, 2, 3, and 6 were given a score of 1 if the participant indicated they were unaware, a 2 if aware, and a 3 if intentionally retrieving. Question 4 was scored 0 if the participant never became aware and 10 if they were immediately

aware. Scores for questions 5 and 7 were a simple transcription of the number of items people said that they were aware of retrieving. Thus, the minimum test awareness score possible (i.e., indicating the least test awareness) across seven questions was 4 and the maximum score possible (i.e., indicating the most test awareness) was 22 plus the number of items the participant was aware of retrieving.

CHAPTER III

RESULTS

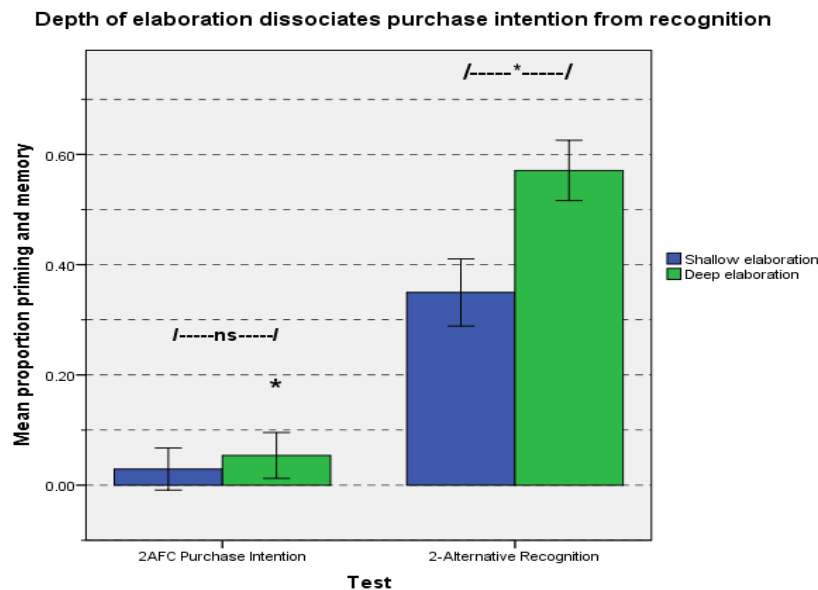
The significance level for all statistical tests was set at $p < .05$. For the forced choice purchasing task, a response was considered “correct” if the participant selected the brand name that had been designated as the target in that product category, regardless of whether the target brand was studied or not. The proportion of “correct” responses in the deep, shallow, and baseline conditions was calculated for each participant. The mean proportion of “correct” responses (across 64 participants) in the deep condition was .540 ($SD = .171$), in the shallow condition was .516 ($SD = .147$), and in the baseline condition was .486 ($SD = .116$). Priming in the deep condition (the difference between response accuracy in the deep and baseline conditions, $M = .054$) was significant $t(64) = 2.60$, ($SEM = .020$). Priming in the shallow condition (the difference between response accuracy in the shallow and baseline conditions, $M = .029$) was not significant $t(64) = 1.53$, $p = .131$ ($SEM = .019$). The difference ($M = .025$, $SD = .209$) between priming in the deep condition and shallow condition was not significant $t(64) = .947$, $p = .347$. Collapsing across the deep and shallow conditions, priming ($M = .042$) was significant $t(64) = 2.75$, ($SEM = .015$).

For the recognition task, accuracy in the deep and shallow conditions was determined by participants’ ability to select the target product that had been presented earlier. In the baseline condition, a participants’ response was accurate if they correctly rejected both alternatives. The mean proportion of “correct” responses (across 64 participants) in the deep condition was .763 ($SD = .154$), in the shallow condition was .542 ($SD = .190$), and in the baseline condition was .808 ($SD = .154$). In order to get a better sense of how well participants recognized products that

had been presented earlier, participants' false alarms in the baseline condition (selecting a product that had not been presented earlier) was subtracted from their hit rates in the deep and shallow conditions. Mean false alarm rate ($1 - \text{baseline accuracy}$) was .192 ($SD = .154$). Mean corrected recognition memory was .571 ($SD = .219$) in the deep condition and .350 ($SD = .244$) in the shallow condition, both of which were highly significant, both t 's > 10 .

In order to determine whether or not the LOP manipulation dissociated the recognition and forced choice purchasing tests, deep priming, shallow priming, deep corrected memory scores, and shallow corrected memory scores (see Figure 1) were submitted to a 2x2 repeated measures (LOP X Test) ANOVA. The interaction was significant, $F(1,63) = 29.6$, $MSE = .021$. This dissociation is one piece of evidence that shows participants were not using recognition memory when completing the forced choice purchasing task.

Figure 1



Another approach to examining whether participants were using recognition memory when completing the forced choice purchasing task is to look at both the correlation between recognition memory and forced choice priming and the correlation between the recognition LOP

effect and the priming LOP effect. If participants are using recognition memory to complete the forced choice purchasing task, participants with a high degree of recognition memory (and a large recognition LOP effect) would also show a high degree of forced choice priming (and a large LOP priming effect). However, neither the correlation between recognition memory and forced choice priming, $r(64) = -.072, p > .5$, nor the correlation between recognition LOP and forced choice LOP, $r(64) = -.048, p > .7$, was significant.

As mentioned in the introduction, in order to further establish the distinct nature of explicit recognition and implicit forced choice purchasing tests, an awareness questionnaire was given to participants after both tests. Adding up all the scores for seven questions, test awareness scores after the forced choice purchasing task and the recognition task were, respectively, ($M = 13.1, SD = 7.69$) and ($M = 33.5, SD = 11.1$). Because participants in the recognition task had been instructed to intentionally retrieve items that had been studied earlier during the elaboration task, the scores for question 5 and 7 after recognition were much greater than after forced choice purchasing task, thus inflating the recognition test awareness score. If the scores for questions 5 and 7 were not included in the test awareness total, then test awareness scores after the forced choice purchasing task and the recognition task were, respectively, ($M = 10.1, SD = 4.83$) and ($M = 17.3, SD = 3.42$). Regardless, recognition test awareness was far greater than forced choice test awareness, both t 's > 7 .

If the priming in forced choice is simply recognition memory's influence on the purchasing task, then it might be expected that relationship between forced choice test awareness and priming would be similar to the relationship between recognition test awareness and recognition memory. These correlations are presented in Table 1. Clearly, the relationship between recognition test

awareness and recognition memory was more positive and stronger than the relationship between forced choice test awareness and priming.

Table 1

Correlations between priming/memory test performances and their corresponding awareness questionnaire totals.

| | FC Awareness | RG Awareness | |
|------------------------|---------------------|---------------------|-----------------------|
| Deep priming | -.03 | .22 | Deep memory |
| Shallow priming | -.18 | -.02 | Shallow memory |
| Priming LOP | .11 | .25* | Memory LOP |
| Priming | -.13 | .10 | Memory |

In addition, for each participant, mean response times in the forced choice purchasing task were calculated in the deep, shallow and baseline conditions. Mean response time (across 64 participants) in the deep condition was 1262.68 ($SD = 230.07$), in the shallow condition was 1265.71 ($SD = 211.47$), and in the baseline condition was 1268.37 ($SD = 198.07$). Clearly, there was no response time priming effect in the forced choice purchasing task. Response times for “correct” trials only (i.e., trials in which a critical brand-name product was chosen) were also examined. Mean response times for correct trials in the deep condition was 1250.61 ($SD = 259.29$), in the shallow condition was 1236.98 ($SD = 215.78$), and in the baseline condition was 1258.60 ($SD = 204.03$). Again, there was no response time priming effect in the forced choice purchasing task even when the corrected mean response times were analyzed.

CHAPTER IV

DISCUSSION

Throughout the marketing and consumer literature, there are many instances in which exposures to brand name products are very brief. In addition, there are many instances in which consumer purchasing decisions are snap decisions. Although the marketing and advertising industry can be very broad, essentially the main basis of all the past and current research is to address two specific questions, “What is the most effective way of presenting products to consumers?” and “What is the best effective way of testing consumers’ purchasing behavior from the different types of presentations?” Building upon these questions, at study, this experiment used an elaboration task by LOP manipulations (i.e., deep elaboration and shallow elaboration) in order to expose products on the consumers. And at test, this experiment used a forced choice purchasing task (i.e., implicit test) and a recognition memory test (i.e. explicit test).

Often times, it is assumed that consumers’ purchasing behavior is highly influenced by their recognition memory for the brand name products. However, results from this experiment indicated that purchasing behavior was independent of recognition memory for studied products. Essentially, there were many dissociations across the forced choice purchasing task and recognition memory which determine led to the conclusion that these two tests were two different types of memory tests. The major dissociations across the two tests were shown through the varying differences after LOP manipulation effects (i.e., depth of elaboration task) and test awareness questionnaire scores.

Results from this experiment showed that the way in which consumers are exposed to brand name products (i.e., accomplished by LOP manipulation effects) has different effects depending on whether the test is for memory or for purchasing. Though exposing products in a deeply processed manner has much more significance than exposing products in a shallowly processed manner during the recognition test, that does not necessarily mean that the same manipulations will have parallel effects in other types of memory tests. For instance, in this experiment, the effect of exposing products in a deeply processed manner was very similar and did not have a significant difference to exposing products in a shallowly processed manner on the forced choice purchasing task. In other words, advertisers should not always display products in just a deeply processed manner and assume that recognition memory effects will be parallel across different memory (i.e., purchasing behavior); thus, other approaches to exposing products should be considered. As predicted, more deeply processed brand name products were more successfully retrieved during the recognition test. There was a significant LOP effect in the recognition test, but no significant LOP effect in the forced choice purchasing task. These results show that exposing products in a deep processing way will result in increased memory retrieval only in a recognition test but not on a forced choice purchasing task. In other words, marketing industries should not always solely depend on incorporating deep processing behavior in brand name exposure techniques, but should also consider alternative ways in which to present brand name products to consumers. After all, exposing products in a shallowly processed manner had similar priming effects in forced choice purchasing as exposing products in a deeply processed manner.

In addition to LOP manipulation effects, the magnitude of participants' test awareness scores for the recognition test were much greater than for the forced choice purchasing task. Correlations

were also analyzed between forced choice purchasing task awareness scores and priming effects and between recognition test awareness and memory effects. The correlations between both recognition test awareness and memory LOP effects and between recognition test awareness and memory performance were positive. In contrast, correlations between both forced choice purchasing task awareness and priming LOP effects and between forced choice purchasing task awareness and priming performance were negative. If one were to assume that the recognition memory test and forced choice purchasing task were to be identical, then one might have expected these awareness and memory correlations to be similar in the two tests. Instead, this experiment has shown that both correlations with awareness scores and priming/memory performance were directly opposite.

When consumers are given a long period of time to process brand name products in a forced choice purchasing task, the process of selecting a brand name product may be influenced by recognition memory. On the other hand, when consumers are given a short period of time, products selected during the forced choice purchasing task are probably not influenced by any sort of recognition memory. That being so, since the duration of the forced choice trials was very brief (i.e., 3 seconds), and participants used only an average of 1.3 seconds per trial to respond, participants generally did not have the chance to tap into their recognition memory in order to select a brand name product during the forced choice purchasing task.

The fact that participants received very brief exposure to brand name products at study, yet still showed priming and memory effects indicates how a minimal exposure to brand name products has the ability to influence consumers' decision making process. At study, exposure to target brand name products was very brief. Specifically, participants selected the target product a third

of the time, took an average of 1.6 seconds to do so, and the brand name of the products played no role in their decisions. Not only were the participants limited in time during the exposure process, but also the brand name products were exposed in triplets, meaning that if participants would've taken all 3 seconds to respond, they would still have been exposed to a single product for only a single second each.

At test, participants made snap decisions during the forced choice purchasing task in which they received only 3 seconds to do so. Participants also made snap decisions during the recognition test in order to test their memory performance and also received only 3 seconds to do so.

Participants averaged less than 1.3 seconds to make their selection. Both the forced choice purchasing task and recognition test involved a selection process between two very identical products that differed only on brand name. As noted in the methods section, development of stimuli pictures (for brand name products) was done very cautiously and carefully in order to maintain the parallel features across the two pictures, including orientation, size, color and shape. Despite the fact that participants received two identical products and were asked to make a selection either for a purchase intention or a memory recognition, they selected the target brand name product more often it was studied than if it was not studied.

Though it is often assumed in the advertising industry, that consumers' base their purchasing decision off of recognition memory, results from this experiment have revealed that consumers may actually be incorporating unconscious memory into their conscious act of purchasing and deciding on a brand name product. In other words, snap purchase decisions rely on an implicit memory system that is independent of recognition memory. Advertisers should not use consumers' recognition memory for studied products to predict purchasing behavior.

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APPENDIX A

*Sample of a Deep Elaboration trial:
(Not equivalent to actual size in the experiment)*

Least Frequently Used



APPENDIX B

*Sample of a Shallow Elaboration trial:
(Not equivalent to actual size in the experiment)*

Least Shiny



APPENDIX C

*Sample of a forced choice purchasing task/recognition task trial.
(Not equivalent to actual size in the experiment)*

Lipstick



APPENDIX D

Test Awareness Questionnaire

- (1) While you were doing the purchasing task that you just finished, what did you think was the purpose of this task?
- (2) While you were doing the purchasing task, did you notice any relation between the brand-name products in the purchasing task and the brand-name products in the first task you did, the one with three products?
 - a. If you noticed a relation, what relation did you notice?
- (3) While you were doing the purchasing task, did you notice that some of the brand-name products were the exact same pictures of the same brand-name products as had been presented earlier in the task with three products?
- (4) If you noticed that products had been repeated from the task with three products to the purchasing task, please rate WHEN you noticed this in the purchasing task.
 - a. For your rating, use a scale of 1-10, where 1 is "noticed only after the entire task was complete "and 10 is "noticed right away". (Use zero if you didn't think about the fact that products had been repeated across the two tasks until it was mentioned in these questions.)
- (5) If you noticed that products had been repeated across the two tasks, please estimate HOW MANY products you noticed during the purchasing task that had been repeated from the task with three products.
 - a. (Again, use zero if you didn't think about the fact that products had been repeated across the two tasks until it was mentioned in these questions.)
- (6) If you noticed that products had been repeated across the two tasks, did you INTENTIONALLY CHOOSE the repeated brand-name products during the purchasing task just because they had been presented earlier or did you COMPLETE THE PURCHASING TASK AS BEST YOU COULD?
 - a. (If you didn't notice that products had been repeated until it was mentioned in these questions, just type in "Didn't notice.")
- (7) If you INTENTIONALLY CHOSE products that had been repeated across the two tasks, please estimate how often you did this.
 - a. (If you did not intentionally choose repeated products, please type in something like "Just did the best I could.")